REMARKS/ARGUMENT

Request for Continued Examination:

An RCE and a Request for Extension of Time have been filed herewith.

Regarding the Claims in General:

Claims 10, 20-29, 31-32, and 34-39 are now pending, claims 1-9 and 11-19 previously having been canceled. Claims 20, 31, and 36 have been amended to improve the form for purposes of examination.

Claims 30 and 33 have been canceled without prejudice in view of the amendments to claim 20, and claim 34 has been made dependent on claim 21. The amended claims now recite explicitly what was already at least implicit in these claims as previously presented, and have therefore not been narrowed for statutory purposes related to patentability.

Regarding The Allowable Subject Matter

Applicants note with appreciation the allowance of claim 10 and the indication that claims 27, 32, 37, and 39 would be allowed if rewritten in independent form incorporating the limitations of their respective parent claims. Because these claims are all directly or indirectly dependent on claims 20, 36 or 38, which are believed to be allowable as presented over the newly cited references as discussed below, these claims are being retained in dependent form pending the Examiner's further consideration.

Regarding the Prior Art Rejections:

In the outstanding Office Action, claims 20-22, 24-26, 28-31, 33-36, and 38 were rejected under 35 U.S.C. 102(b) as being anticipated by Kojori et al. U.S. Patent 6,850,426 (Kojori), and claims 20-26, 28-31, 33-36, and 38 were rejected under 35 U.S.C. 102(b) as being anticipated by Rozman et al. U.S. Patent 5,438,502 Rozman. Reconsideration and withdrawal of the rejections are respectfully requested in view of the amendments made herein.

Preliminarily, the Examiner's attention is respectfully directed to the fact that the date of Kojori et al. patent, as well as the publication date of the underlying application are both after the

priority date of this application. It is therefore presumed that the rejection based on Kojori was intended to be under 35 U.S.C. 102(e).

Turning now to the substance of the rejections, the present invention is concerned with the operation of a switched power delivery system which provides controlled AC power to a load from an unregulated AC source through a DC link. Such a system includes an energy storage element in the DC link, i.e. a bus capacitor or a link inductor, and the particular objective of the invention is to control the power input to the system relative to the load power in such a way that the power rating of the energy storage element can be minimized. This is based on recognition that (as described in the Specification at paragraph [0008]):

> the main purpose for including the passive components in the energy transfer circuits for power inverters is to absorb or deliver the difference between the instantaneous input power of the inverter and output power that is applied to a load . . .When the instantaneous input power tracks with the instantaneous output power . . . the energy to be stored or delivered by the passive component, such as a bus capacitor or DC link inductor can be minimized. For example, the DC bus ripple voltage can be minimized, as well as the DC link ripple current. By determining a particular voltage or current ripple level that can be tolerated by the specific application, the size of the DC bus capacitor or DC link inductor can be minimized accordingly.

In contrast, both Kojori and Rozman are concerned with systems in which the input power source is a variable speed prime mover such as an aircraft engine, although Kojori suggests possible use in other applications as well. There is no disclosure, teaching or suggestion in either reference of concern for applicants' problem, or of a solution to that problem. Not surprisingly, this difference in focus is manifest in the present claims which recite several distinctions over the references.

Claim 20, for example, is directed to a controller for an electrical power delivery system which provides controlled power to a load, in which the power delivery system includes a DC link having a rectification circuit for converting incoming AC power to DC power, a switched inverter for generating controlled AC power from the DC power, and an energy storage unit in the DC link coupling the rectification circuit and the inverter. The references show such an environment as well, but the similarity ends there. As recited in claim 20, the controller comprises:

> an input power conditioning unit adapted for connection to an output of the rectification circuit;

> a power control unit coupled to the power conditioning unit for controlling the power drawn by the power conditioning unit;
>
> a first sensor unit operative to provide a signal indicative of the DC power drawn by the power conditioning unit; and
>
> a second sensor unit operative to provide a signal indicative of output AC power delivered to the load;
>
> wherein the power control unit is operable in response to the signals from the first and second units to control the power conditioning unit to minimize the difference between the DC power drawn by the input power conditioning unit and the AC power delivered to the load, whereby the capacity of the energy storage unit is minimized.

Kojori does not disclose, teach or suggest a power control unit coupled to a power conditioning unit for controlling the input power drawn by the power conditioning unit. Kojori has no identifiable power conditioning unit, and Kojori's controller 2, which the Examiner has associated with the claimed power control unit, ". . . generates the appropriate gating signals to control the switching of power conversion bridge 3 to provide bi-directional power flow" (see col. 10, lines 44-46). Controller 2 seems to be more like an equivalent of a conventional inverter control unit 32 shown in Fig. 3 of the present application.

Kojori also fails to disclose, teach or suggest a first sensor unit operative to provide a signal indicative of the DC *power* drawn by the power conditioning unit, and a second sensor unit operative to provide a signal indicative of output AC *power* delivered to the load. First, as noted above, Kojori does not have an identifiable power conditioning unit. Further, while Kojori does show two sensors 102 and 120, they do not correspond to the functions of the claimed sensor units. Kojori's first sensor 102 measures the AC voltage and current at the VVVF source/load end 101, but does not provide a signal indicative of power (see col. 12, lines 4-27). Sensor unit 120 measures the DC current and voltage at the other end, but also does not provide a signal indicative of power (see col. 11, lines 17-24).

Finally, there is no disclosure, teaching or suggestion in Kojori for using any sensor signal, indicative of power or anything else, ". . . to control [a] power conditioning unit to minimize the difference between the DC power drawn by the input power conditioning unit and the AC power delivered to the load, whereby the power capacity of a passive energy storage unit is minimized."

Claim 20 is not anticipated by Rozman either. Sensors 40 and 42 in Rozman measure DC voltage and current, but do not provide a signal indicative of power in the DC link (see Fig. 3). Sensor 26 does measure AC voltage, but there is no other AC sensor, and in any case, the output of sensor 26 is not used to provide an indication of output power.

Further, there is no disclosure, teaching or suggestion ". . . to control [a] power conditioning unit to minimize the difference between the DC power drawn by the input power conditioning unit and the AC power delivered to the load, whereby the power capacity of a passive energy storage unit is minimized."

Claim 20 is accordingly not anticipated by Kojori or Rozman, and should be allowed, along with its dependent claims.

Independent claim 36 is also not anticipated by Kojori or Rozman. This claim is directed to a method for controlling power delivered to a load by a power delivery system which includes a DC link having a rectification circuit for converting incoming AC power to DC power, a switched inverter for generating controlled AC power from the DC power, and an energy storage unit in the DC link coupling the rectification circuit and the inverter. The method as recited comprises the steps of:

> obtaining an indication of input power drawn by the power delivery system from a power source from measurement of the current and voltage at the rectification circuit;
>
> obtaining an indication of output power delivered to the load;
>
> controlling a power conversion unit coupled to the input power source to minimize the difference between the input power drawn from the source and the output power delivered to the load, based on the indications of the input and output power.

As explained in connection with claim 20, neither Kojori nor Rozman disclose, teach or suggest measuring parameters from which indications of input and output power are obtained, or controlling a power conversion unit to minimize the difference between the input and output power. Claim 36 should therefore also be allowed.

Finally, claim 38 is explicitly directed to a method for minimizing power rating for a passive component in a power delivery system. Neither Kojori nor Rozman discloses, teaches or suggests anything like this, nor discloses, teaches or suggests apparatus capable of performing the claimed method. Moreover, the specific steps claimed are:

obtaining an indication of input power drawn by the power delivery system from a power source;

obtaining an indication of output power supplied by the power delivery system; and

controlling a power conversion unit coupled to the input power source to minimize the difference between the input power drawn from the source and the output power based on the indications of the input and output power.

It should also be apparent from the analysis of claims 20 and 36, that these steps are neither disclosed, taught or suggested in the references. Claim 38 should therefore also be allowed.

In view of the foregoing, favorable reconsideration and allowance of this application are respectfully solicited.

EXPRESS MAIL CERTIFICATE

I hereby certify that this correspondence is being deposited with the United States Postal Service as Express Mail to Addressee (mail label #EV342542782US) in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on December 21, 2005:

Dorothy Jenkins
Name of Person Mailing Correspondence

Dorothy Jenkins
Signature

December 21, 2005
Date of Signature

LAH:lac

Respectfully submitted,

Lawrence A Hoffman
Registration No.: 22,436
OSTROLENK, FABER, GERB & SOFFEN, LLP
1180 Avenue of the Americas
New York, New York 10036-8403
Telephone: (212) 382-0700